Y-12 2013 ANNUAL REPORT
NATIONAL SECURITY COMPLEX

MAKING THE WORLD SAFER

Y-12 2013 ACCOMPLISHMENTS

1. **Personnel Safety –** received the National Safety Council's Occupational Excellence Achievement Award for the tenth straight year, maintained DOE Voluntary Protection Program Star status and reduced recordable injuries by 13 percent.

2. **Nuclear Safety Culture –** established the Nuclear Safety Culture campaign to foster an open, trusting environment and encourage technical inquisitiveness.

3. **Engineering and Nuclear Safety Programs –** improved criticality safety in Building 9212 through engineered controls. Expanded system health monitoring from 5 to 20 systems and developed metrics to evaluate Vital Safety Systems and key production equipment. Maintained more than 95 percent availability of Vital Safety Systems.

4. **Security –** integrated more than 500 protective force subcontract personnel into the Y-12 prime contract in 28 days, strengthening the reporting structure and communication. Improved security infrastructure and Central Alarm Station, driving down false alarm rates, Critical Security Element repair times and compensatory measures.

5. **Defense Programs Production –** completed 102 percent of the Life Extension Program baseline plan, 146 percent of the surveillance baseline plan, 105 percent of the dismantlements baseline plan and 110 percent of packaging baseline plan.

6. **Nonproliferation and Global Security –** processed more than 3,600 kilograms of uranium (kgU), which was 250 kgU more than planned, and shipped 2,245 kgU of metal and oxides (225 kgU more than planned) ahead of schedule for the Highly Enriched Uranium Disposition Program, accelerating schedules to meet new requirements.

7. **Naval Reactors –** completed production of Naval Reactor feedstock material ahead of schedule and under budget, helping keep the nation's nuclear fleet at the ready.

8. **Uranium Processing Facility –** confirmed the microwave casting technology and completed two site readiness projects under budget and ahead of schedule. Partnered with the University of Tennessee and the Tennessee Department of Economic and Community Development to reach out to more than 1,500 potential Uranium Processing Facility suppliers.

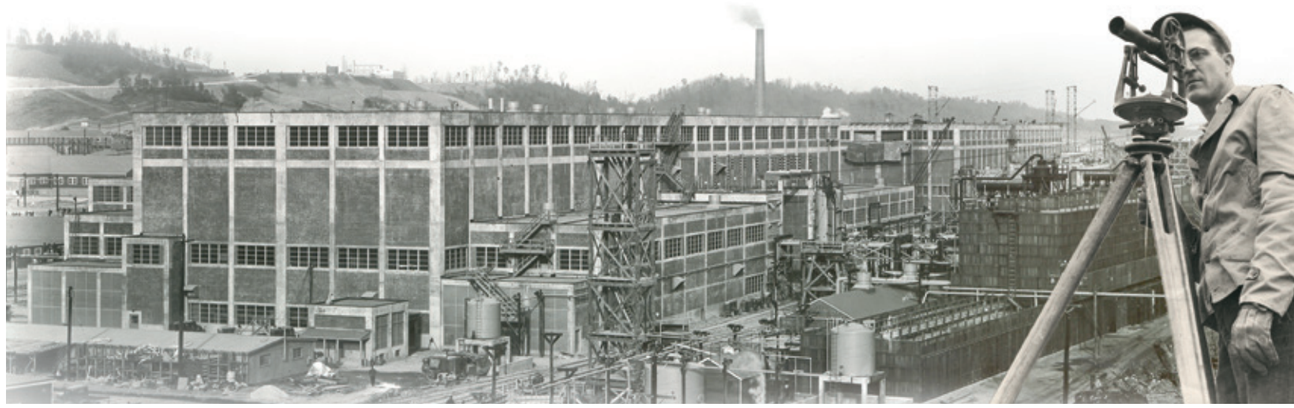
9. **Budget Response –** addressed a significant sequester-driven funding reduction and avoided furloughing employees by limiting procurements, travel and hiring. Minimized near-term impact of reductions on missions and employees, while operating at the highest levels of safety and security.

10. **Productivity –** validated $57 million in productivity efficiencies, cost avoidances and hard savings.

11. **Operational Improvements –** reworked the lock out/tag out program and reduced reported occurrences by nearly 80 percent, making ours one of the strongest programs in the Nuclear Security Enterprise. Completed significant legacy facility risk-reduction work in Buildings 9206, 9201-5 and 9204-4. Markedly improved conduct of operations performance and completed reviews of key systems and the site-wide improvement plan.

12. **Contractor Assurance System –** improved effectiveness through the development and use of key performance indicators and initiatives, direct involvement of senior leadership, and refocusing of goals and communication.

13. **Technology Development –** won an R&D 100 Award for a high-efficiency thermal neutron detector. Became the only National Nuclear Security Administration (NNSA) production facility to receive an R&D 100 Award in 2013. Fabricated materials for the next generation of nuclear research and power reactors. Successfully demonstrated the viability of five critical technologies for deployment in the Uranium Processing Facility.



ABOUT Y-12

Fiscal 2013 marked the 70th anniversary of the Y-12 National Security Complex, located in Oak Ridge, Tenn. Originally part of the Manhattan Project, Y-12 was constructed to enrich uranium for an atomic weapon to end World War II.

For seven decades, Y-12 has met evolving national security needs—from separating lithium-6 for thermonuclear weapons during the Cold War to Y-12's modern missions: maintaining the safety, security and effectiveness of the United States' nuclear weapons stockpile; providing safe and effective nuclear feedstock to fuel the U.S. Navy; and reducing the global threat posed by nuclear proliferation and terrorism.

As a key facility in the NNSA's Nuclear Security Enterprise, Y-12 has actively sought improvements in all areas of our business, built strong relationships, solved weighty technological dilemmas and preserved a solid can-do spirit in serving individual customers, the United States and the world.

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LOOKING BACK AT 2013

Fiscal 2013 was a year of significant progress and accomplishment at the Y-12 National Security Complex. Operating a 70-year-old nuclear facility is a unique challenge, and with the 2013 sequester-driven funding reduction, that challenge grew. Y-12's 2013 mission successes, along with important enhancements made to site infrastructure and conduct of operations, are a testament to the commitment of the Y-12 work force.

Y-12 met or exceeded fiscal 2013 mission deliverable requirements for Defense Programs, Nonproliferation and Global Security. We processed and delivered more than 1.2 metric tons of low-enriched uranium feedstock for foreign research reactors and completed production of Naval Reactors' feedstock material ahead of schedule and under budget. We also helped secure vulnerable highly enriched uranium to strengthen global security.

As an NNSA nuclear facility, safety is paramount in all we do. Y-12 reduced recordable injuries across the site by 13 percent, received the National Safety Council's Occupational Excellence award for the tenth straight year and maintained Voluntary Protection Program Star status. We also initiated a Nuclear Safety Culture campaign to foster an open, trusting environment among employees.

We reworked our lock out/tag out program to reduce reported occurrences by nearly 80 percent and completed facility risk-reduction work in three legacy buildings. Y-12 markedly improved conduct of operations performance and completed reviews of key systems as well as a site-wide improvement plan.

We continued to focus on site security and integrated more than 500 protective force subcontract personnel into the Y-12 prime contract, strengthening the reporting structure and communication. We dramatically improved the security infrastructure and the Central Alarm Station, driving down nuisance and false alarm rates, Critical Security Element repair times and compensatory measures.

We made progress on the Uranium Processing Facility project, including confirming microwave as the casting technology and completing two site-readiness projects under budget and ahead of schedule.

Y-12 won an R&D 100 Award for the development of a high-efficiency thermal neutron detector and also delivered more invention disclosures, patents and license agreements than any other NNSA production site.

In addition, Y-12 validated $57 million in productivity efficiencies, cost avoidances and hard savings, exceeding our goal by 60 percent. By rigorously limiting procurements, travel and hiring, Y-12 addressed the sequester-driven funding reduction, avoided furloughing employees and helped minimize the near-term impact to missions and employees, while operating at the highest levels of safety and security.

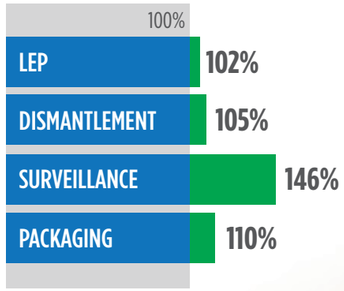
Please read on for a more in-depth look at important work accomplished by Y-12.

MANAGING THE STOCKPILE

Y-12 exceeded weapons production commitments in all major Stockpile Program mission areas, including the Life Extension Program (LEP), Dismantlement, Component Disposition, Surveillance and Nuclear Packaging. Capitalizing on the expertise of a highly skilled work force, Y-12 met all requirements, milestones and priorities for NNSA Defense Programs weapons production deliverables.

We were able to meet our requirements despite a number of significant obstacles such as equipment degradation, legacy container issues and funding shortfalls. Experienced Y-12 engineers and operators identified each hurdle, developed corrective action plans and executed necessary process changes.

Stockpile Deliverables Completed in 2013



One major LEP production challenge included an unexpected degradation of a filter system due to age and excessive wear, which resulted in nonconforming materials needed to support LEP deliverables. We expedited the production of additional material, recovered to the baseline schedule and ultimately exceeded deliverable requirements at the end of the fiscal year—all within the baseline budget. In collaboration with the Design Agency, Y-12 proposed a method and performed supplemental testing, enabling ultimate acceptance and use of the original non-conforming materials batch.

In addition, Y-12 overcame major challenges within the Packaging Program, where container legacy issues were identified and resolved by the end of the fiscal year. Skilled teams, including people from other sites, identified gaps, established corrective actions and executed process changes. These process improvement activities were successfully completed by the end of the fiscal year, and Y-12 ultimately exceeded the NNSA–directed container schedule requirements.

Y-12 provides highly enriched uranium metal to fuel the nuclear Navy.

POWERING THE NUCLEAR NAVY

Powering the nuclear Navy is one of Y-12's core missions. Maintaining our long-standing partnership with the U.S. Navy helps ensure our national security and keeps the nation's fleet of submarines and aircraft carriers fueled to execute maritime missions worldwide.

In fiscal 2013, we processed sufficient quantities of uranium feedstock for Naval Reactors' use and significantly exceeded the yearly planned amount. All shipments of Naval Reactors feedstock were completed on time and under budget.

The Y-12/Navy working relationship is vital to America's security.

To reduce nuclear dangers, Y-12 fabricates low-enriched uranium-molybdenum coupons for reactor conversions and secures vulnerable nuclear material around the world.

As a crucial part of the Nuclear Security Enterprise, Y-12 executes broader national security missions to meet NNSA priorities in nuclear nonproliferation, work for other government agencies and private sector partnerships. We provide solutions for a variety of emerging global security challenges, using our experience in the securing and safeguarding of nuclear materials and classified information.

NUCLEAR NONPROLIFERATION AND GLOBAL SECURITY 2013 ACCOMPLISHMENTS:

- Processed more than 3,600 kilograms of uranium (kgU), which was 250 kgU more than planned, and shipped 2,245 kgU of metal and oxides (225 kgU more than planned) ahead of schedule for the Highly Enriched Uranium (HEU) Disposition Program, accelerating schedules to meet new requirements.
- Processed and delivered more than 1.2 metric tons of low-enriched uranium (LEU) feedstock for foreign research reactors and downblended an additional 1.1 metric tons to replenish the LEU inventory.
- Fabricated materials for the next generation of nuclear power and research reactors, including uranium-alloy fuels for the TerraPower project and the uranium-molybdenum (U-Mo) project, and LEU oxides for the conversion of the SLOWPOKE research reactor in Jamaica.

- Developed, validated and used a U-Mo three-plate casting mold design for research reactor technology that triples production capacity.
- Secured vulnerable HEU from France, Italy and Canada as part of President Obama's Four-Year Effort to secure the world's most vulnerable nuclear material.
- Conducted 16 Global Threat Reduction Initiative Alarm Response Training courses for nearly 600 participants from 32 states and Puerto Rico. Implemented improvements that raised the post-training customer survey reviews from 73 percent "excellent" to more than 97 percent "excellent."
- Received authorization to transfer items to the Nuclear Detection and Sensor Testing Center library of test objects, firmly establishing the new center as a vital national resource.

Technicians load HEU oxide product into a shipping can.

Y-12 HEU TRANSPARENCY SUPPORT

In 1993, the United States and the Russian Federation signed the HEU Purchase Agreement to provide for the safe disposition of 500 metric tons of surplus Russian HEU from dismantled nuclear weapons—enough material for about 20,000 nuclear weapons. For the past 17 years, Y-12 has supported the HEU Transparency Program, which performs 24 special monitoring visits every year—six visits to each of the four Russian nuclear facilities that process HEU under the Purchase Agreement. We have supplied:

- As many as 13 uranium processing experts per year as HEU Transparency monitors.
- Extensive training to all U.S. monitors in the areas of uranium processes, uranium compounds, metallurgy and uranium metal processing.
- Expertise for process analysis.

Downblending of the entire 500 metric tons was completed in November 2013. The resultant LEU is being put into peaceful use in the United States, generating 10 percent of all U.S. electrical power. The 500 metric tons of uranium eliminated under this agreement is substantially greater than the planned total of all other major worldwide fissile material reduction initiatives combined.

READYING THE SITE FOR UPF

Construction of the Uranium Processing Facility (UPF) is an urgent need for the nation. UPF will replace deteriorating facilities and is essential for maintaining a safe U.S. nuclear weapons stockpile, supplying fuel for the nation's nuclear Navy and world's research reactors, securing vulnerable nuclear materials, and performing nuclear forensics and other vital missions.

This fiscal year, Y-12 began site readiness for UPF, completing two projects ahead of schedule, under budget and without even a first-aid case. Because the planned Haul Road extension will impact eight wetland areas, excavated wetland material containing seeds of native plants will be segregated and protected until it can be used for restoration activities nearby. The project to establish a wet spoils area addressed two needs: spoil locations for unusable soil and interim storage of important wetland material.

The initial electrical project included reconfiguring existing overhead lines and installing new power poles, lines and fiber optic cables. To help reduce environmental impacts, Y-12 removed and recycled ~52,600 pounds of copper, aluminum cable and other mixed metals. Many of the demolished items, such as power poles and transformers, are slated for reuse.

The U.S. Army Corps of Engineers, or USACE, is managing the relocation of Bear Creek Road, the main roadway through the site, and extension of the Haul Road. USACE personnel work closely with the UPF project team and other contractor staff to coordinate engineering, construction and management of traffic flow—ensuring nearly 7,000 site workers are able to arrive safely at their work destinations and meet Y-12 mission requirements in the midst of a construction project. The relocation of Bear Creek Road, which includes construction of potable water lines, is the longest scheduled site readiness task. Both the relocation and the Haul Road extension are expected to be completed in 2014.

UPF will deploy critical technologies that replace our core uranium operations in Building 9212, a nearly 70-year-old processing facility. Y-12 has successfully demonstrated the viability of most of the critical technologies, including bulk metal oxidation, recovery extraction centrifugal contactors, uranyl nitrate hexahydrate (UNH) calcination and microwave casting. Maturation of all technologies will continue in FY 2014.

Microwave casting and centrifugal contactors have been deployed in the current production environment, and plans are under way to deploy UNH calcination in the near future. The UPF project team is aggressively pursuing procurement of prototypical microwave furnaces to test in a UPF–like casting system. This prototypical testing will reduce technology risk for UPF.

The goal is to mature all critical technologies to confidently establish a project baseline; support construction; and ultimately allow the safe, reliable operation of UPF.

This facility and other site transformation projects are key to our future. We are addressing Defense Programs needs as we expand, strengthen and excel in new areas of national security.

To help reduce environmental impacts, Y-12 removed and recycled ~52,600 pounds of copper, aluminum cable and other mixed metals from UPF site readiness projects.

CLOSEOUT OF ARRA PROJECTS
In 2009, Y-12 began several projects funded by the American Recovery and Reinvestment Act (ARRA). Projects such as deactivating and demolishing legacy facilities; disposing of legacy materials, debris and sanitary waste; and decontaminating and remediating soil resulted in a cleaner, more efficient site that is less costly to operate.

Because Y-12 completed ARRA projects under budget, in fiscal 2013 the site was able to use savings from the original scope to perform additional work valued at $46 million. This important work included reducing environmental mercury contamination left over from a post-World War II mission of separating lithium isotopes.

The Secondary Pathways Project reduced mercury infiltration into the ground and stormwater system in the vicinity of two legacy buildings, 9201-5 and 9204-4. In addition, Y-12 oversaw the URS-CH2M Oak Ridge, LLC (UCOR) subcontract to develop a conceptual design for a mercury treatment facility that will reduce the legacy mercury reaching Upper East Fork Poplar Creek, which originates on-site and flows through the city of Oak Ridge. This work also included water characterization during various weather conditions, and the conceptual design includes options for several methods of removing mercury from the water.

Proper disposal of mercury-contaminated soil is key to environmental cleanup at Y-12. As part of a mercury soils contamination treatability study conducted by UCOR, three available treatment processes for mecury-contaminated soils were evaluated to provide options for future disposal of the soils.

Five tanks associated with mercury processing were safely transported, mercury wastes treated and all wastes dispositioned properly.

UNNEEDED MATERIALS AND CHEMICALS PROGRAM
Y-12's Unneeded Materials and Chemicals Program, initiated in 2006, was designed to disposition materials, chemicals and equipment with no designated future use. At the start of the program, Y-12 identified more than 9,500 excess items such as equipment, vehicles and tooling. An estimated 143,000 pounds of unneeded chemicals identified during the initial phase of the project have been dispositioned. About 2,200 items remain.

This year we reused more than 405,000 pounds of materials and equipment, recycled more than 478,000 pounds of scrap metals and equipment, disposed of more than 330,000 pounds of solid low-level waste and down-posted 15,000 square feet of contaminated areas.

As part of an unneeded materials and chemicals project, cleanup of the South Ridge storage yard began in March and finished under budget and ahead of schedule approximately one month later. Y-12 downposted some 5,400 square feet of contaminated area, sent approximately 450 gallons of oil off-site for energy recovery and dispositioned 70,100 pounds of solid low-level waste—reducing radiological exposure, and improving safety and stormwater compliance. The photos (left) show the storage yard before and after cleanup.

TRANSFORMING THE SITE

LEGACY FACILITY MANAGEMENT
Y-12 conducted a concentrated risk-reduction campaign directed at mitigating risks associated with legacy facilities. Buildings 9206, 9201-5 and 9204-4 are all 70-year-old production facilities.

Fiscal 2013 work on these buildings focused on stabilizing roofs, reducing water intrusion, and removing and disposing of hazardous materials. The following list shows some of the work done to reduce risks to employees and the environment.

- Made structural repairs.
- Restored power and replaced emergency lights and general lighting.
- Drained enriched uranium tanks, wet pipe systems and a brine system.
- Removed from inventory 11 drums of DUZr, which can ignite when exposed to oxygen.
- Disposed of 107 cubic yards of classified tools and equipment and ~2,800 gallons of oil.
- Reduced radiologically contaminated floor space by ~600 square feet and radiologically contaminated building perimeter by ~8,000 square feet.
- Removed and disposed of 3,400 gallons of hazardous chemicals.

Engineers assess the impact Y-12's aging facilities will have on missions during the Uranium Processing Facility's construction period.

PROTECTING OUR PEOPLE

NUCLEAR SAFETY CULTURE
Developing a strong nuclear safety culture is not a new idea at Y-12, but it is one that we have increasingly emphasized. Last year, in concert with the NNSA Production Office and B&W Pantex, Y-12 launched the Nuclear Safety Culture campaign, a site-wide initiative fostering an open, trusting environment and encouraging technical inquisitiveness. The campaign is based on the Institute of Nuclear Power Operations' 10 traits of a healthy nuclear safety culture. An employee survey conducted in September indicated that the Y-12 safety culture has a solid foundation based on trust, personal accountability and a questioning attitude. We will continue implementing our safety culture program to ensure the health and safety of ourselves, our co-workers and the environment.

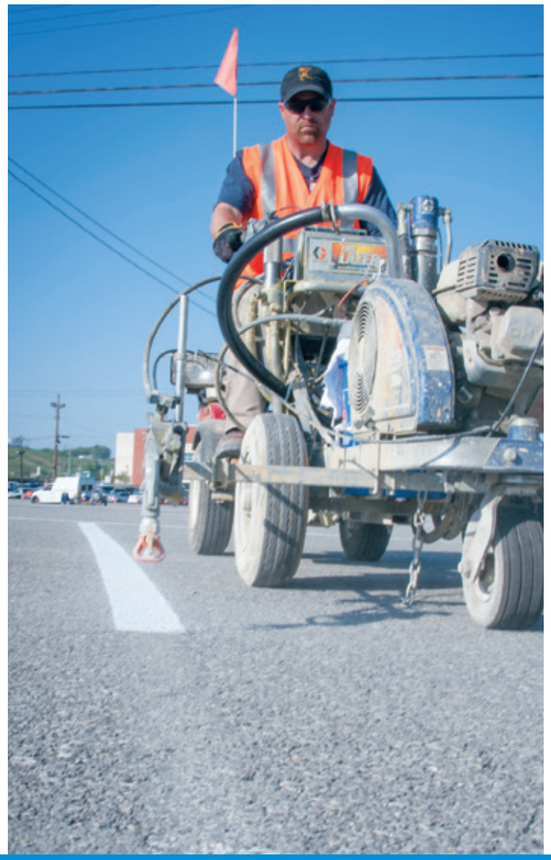
QUALITY OF LIFE INITIATIVE
In 2013, Y-12 continued the Quality of Life initiative, which we began in 2012 to systematically improve the common areas of Y-12. So far, 19 areas in 10 production buildings have received equipment upgrades. Projects to date include rest room, break room and conference room updates designed to provide a more positive work environment. Y-12 dedicated $500,000 to Quality of Life improvements in 2013 and will dedicate $1.2 million in fiscal 2014 to these projects.

EMPLOYEE-DRIVEN SAFETY CAMPAIGN
Y-12 recently implemented the Employee-Driven Safety Campaign to engage employees in identifying new safety concerns, with a particular focus on walkways, stairways and handrails to reduce slip, trip and fall incidents.

With enthusiastic employee participation, we were able to identify and complete more than 250 projects, including:

- Restriping parking spaces, designating crosswalks, installing speed humps and repairing asphalt in the Jack Case Center parking lot.
- Replacing damaged, deteriorated walkways and stairs in a number of locations.
- Changing vehicle access badging requirements to eliminate the mingling of pedestrians and vehicles entering the protected area.

Since implementation of these and other safety initiatives, slip, trip and fall injuries have been reduced by 66 percent.



PARTNERSHIPS
Y-12 increased employee engagement in the invention disclosure and technology transfer processes, which led to a number of new patents, licenses and research agreements in fiscal 2013. Additionally, Y-12 expanded its collaborations with national laboratories, colleges and universities, private companies and federal agencies.

Technology Transfer:

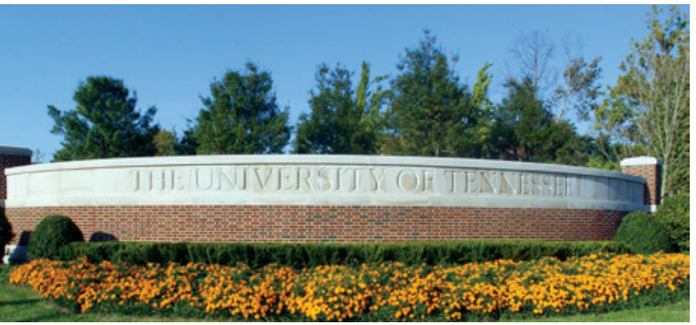
- Submitted 63 invention disclosure forms.
- Processed six new licenses; signed technology agreements with two new start-up businesses; and executed a new cooperative research and development agreement with the University of Tennessee and Black & Decker Medical Systems.
- Received seven patents and one additional notification of future issue.

University Programs:

- Implemented four Joint Assignment Agreements with universities, allowing us to draw upon the technical capabilities and resources of universities in direct support of mission work.
- Increased our collaborations with the University of Tennessee, using Joint Assignment Agreements and graduate research assistants to conduct research and development projects of mutual interest.
- Developed a machinist apprenticeship program with Pellissippi State Community College and the Tennessee Technology Center.
- Offered Friday Academy courses with Roane State Community College and Tennessee Technological University to help employees obtain undergraduate degrees.

Strategic Partnership Projects:

- Engaged NASA, Los Alamos National Laboratory and others on a variety of space-related projects, including kilowatt-class space reactors and several space fusion propulsion proposals.
- Produced Uranium Oxide Test Objects for the Department of Homeland Security (DHS) Domestic Nuclear Detection Office.
- Assigned a Y-12 researcher to Lawrence Livermore National Laboratory to evaluate various additive manufacturing techniques for modernizing machining methods at Y-12.
- Partnered with Oak Ridge Associated Universities, the University of Tennessee's Institute for Nuclear Security, Oak Ridge National Laboratory and the U.S. State Department to host educators from an Indonesian university, helping develop nuclear security curricula.
- Developed new global security training courses, using Y-12's physical and radiological protection expertise for DHS and the FBI.
- Continued technical support and development of test fuel for TerraPower, LLC, in support of its advanced test reactor experiments.
- Presented nuclear/radiological Federal Emergency Management Agency training courses to prepare responders for a potential nuclear/radiological event.
- Provided Office of Personnel Management enhanced ability to electronically manage questionnaires and fingerprints transmittals and processing to help reduce the time required to obtain security clearances.
- Completed research and development work for the United Kingdom Atomic Weapons Establishment.



Y-12's partnership with the University of Tennessee continues to grow, providing valuable research opportunities for graduate students and resources Y-12 can draw upon for mission work.

R&D 100 WINNER
LISe™, a high-efficiency thermal neutron detector developed at Y-12, was selected by *R&D Magazine* as one of the top 100 technologically significant products introduced into the marketplace during 2013.

The $^{6}LiInSe_{2}$ crystal was developed by Ashley Stowe, Y-12 senior development chemist, working with Zane Bell, a former Y-12 senior scientist, and Arnold Burger, professor of physics at Fisk University.

LISe is the first bulk single crystal containing ^{6}Li and is a newly developed replacement technology for ^{3}He thermal neutron detectors. The single-crystalline device will be used in handheld nuclear nonproliferation and homeland security applications to locate fissile materials. This solid-state neutron detector offers the significant advantages of portability, sensitivity, simplicity and low cost. Its simpler, more compact design and higher efficiency are key improvements over current technologies.

The new detector also could be used for nondestructive testing and evaluation, radiation safety and health physics, as well as thermal neutron radiography, computed tomography and neutron science when arrays of crystals are conceived.

ENHANCING OPERATIONS

Y-12 is committed to a culture of continuous improvement. To that end, we developed and implemented a detailed Conduct of Operations (CONOPS) Improvement Plan designed to enhance all facets of site operations.

Building on the success of the CONOPS Improvement Plan and lessons learned, Y-12 developed and implemented a next-generation plan. The new improvement plan includes focused initiatives that cover a fresh hands-on training curriculum, improved communication tools and a revitalized Operational Performance Improvement oversight component.

In addition, we maintained our best-in-class Productivity Improvement Program efforts, continued our vigorous extent of condition and system health reviews and improved the Contractor Assurance System. Two key CONOPS safety initiatives yielded substantial successes in our lock out/tag out program, which protects site workers from energy discharges, and in Y-12's Nuclear Criticality Safety program.

CONTINUING TRAINING

Y-12 implemented a continuing training program in fiscal 2013. The new strategy integrates computer-based requalification training, management feedback, industry operating experience, facility/procedure changes and evaluations of training effectiveness into a coherent schedule.

This formalized continuing training approach has been integrated with the existing training programs. We developed a tracking and documentation process and assigned a flexible continuing training qualification so that appropriate personnel will complete a requisite amount of applicable continuing training annually.

PRODUCTIVITY IMPROVEMENT

Aided by newly trained champions, yellow belts and rapid improvement event facilitators, Y-12 is advancing its lean six sigma philosophy to all areas of the site to reduce waste and risk while increasing quality, safety, security and productivity. Employees across all organizations developed, implemented and validated more than 300 initiatives during the year as part of our Productivity Improvement Program.

Y-12 maintained efforts throughout fiscal 2013 despite budget challenges and validated $57 million in savings. In fact, the efficiencies generated by the Productivity Improvement Program were critical in allowing the site to mitigate sequestration effects, avoid employee furloughs and maintain mission focus.

EXTENT OF CONDITION/SYSTEM HEALTH

In late fiscal 2012, we chartered a cross-functional team to perform a detailed review of selected Y-12 systems, examining vulnerabilities, effectiveness and self-assessment abilities. The team issued a formal report of its findings, including the observation that Y-12 should improve processes for data collection and information flow to ensure management understands the risks to system and facility health. To that end, Y-12 experts are establishing a more mature comprehensive system health process (SHP).

The SHP establishes a means for continuous improvement in achieving our national security mission, nuclear safety and human performance goals. Ultimately, the process will maintain Y-12's unique capabilities and processes highlighted below.

Y-12 CAPABILITIES

STOCKPILE MAINTENANCE	MATERIAL FABRICATION	MATERIAL PROCESSING	MATERIAL STORAGE
ASSEMBLY	GENERAL	Li PURIFICATION	MATERIAL ACCESS AREA
DISASSEMBLY	ENRICHED URANIUM (EU)	EU RECOVERY AND ACCOUNTABILITY	NON-MATERIAL ACCESS AREA
SURVEILLANCE	DEPLETED URANIUM	EU METAL PRODUCTION	
	LITHIUM (Li)	EU SPECIAL PRODUCTION	

CONTRACTOR ASSURANCE SYSTEM
Y-12 made significant improvements to the Contractor Assurance System, implementing multiple initiatives that strengthened and improved the program's comprehensive, transparent and integrated nature. We monitored 12 key initiatives and 13 key performance indicators to ensure we met performance goals and implemented corrective actions where necessary. We also increased the rigor and effectiveness of the Contractor Assurance System, achieving efficiencies with an annualized cost reduction of more than $246,000.

LOCK OUT/TAG OUT SUCCESSES
Y-12 markedly improved the lock out/tag out (LO/TO) program, an energy-isolation program used to protect personnel working on equipment. This year's successes included:

- Performing a stringent renovation of the LO/TO program and reducing reported occurrences by nearly 80 percent.
- Completing 4,377 LO/TOs.
- Generating more than 1,200 equipment-specific LO/TOs.
- Sharing with the DOE Complex our Lessons Learned about reaching and sustaining the desired performance level.

NUCLEAR CRITICALITY SAFETY
Y-12's Nuclear Criticality Safety (NCS) organization ensures that all elements of NCS are in place for operations involving fissile material. Following a number of self-identified issues, Y-12 reviewed the NCS program and implemented an improvement plan to ensure this program—vital to the safety of our workers and the public—is always improving.

Y-12 strives to enhance operations on all fronts, including lock out/tag out operations that protect workers from energy sources as they maintain and upgrade equipment.

Significant accomplishments:

- Improved NCS requirement documentation for all fissile processes in Building 9204-2E, where assembly and disassembly operations occur.
- Confirmed proper loading and storage of all fissile material containers (~2000) in 9204-2E.
- Raised the NCS level of knowledge for fissile material workers in Building 9204-2E.
- Reviewed and upgraded training qualification requirements for criticality safety officers.
- Updated the charter of the NCS Advisory Council.

SECURITY SUCCESSES
Y-12 integrated more than 500 subcontracted protective force personnel into the prime Management and Operating contract in 28 days, taking on this unplanned effort while continuing to meet mission requirements and schedules. To accomplish this organizational change, Y-12 implemented immediate changes to benefits programs, as well as the savings program and disability and pension plans. The new, cohesive organizational structure has enhanced security communication and lines of accountability.

Improvements to the site's infrastructure drove down false and nuisance alarm rates, Critical Security Element repair times and the need for compensatory measures. We also installed additional Argus operator consoles and created special domain maps that allow the plant's alarms to be divided among operator consoles, reducing the number of alarms each Central Alarm Station operator monitors.

INVESTING IN OUR COMMUNITY

Y-12 has a long tradition of investing in the local community through volunteerism and charitable contributions. In 2013, nonprofit organizations such as area food pantries, homeless shelters and United Way benefited from the support of Y-12's employees and subcontractors and their families. Y-12 also is committed to making tangible, lasting investments in education and helping prepare the next generation of scientists and engineers to meet the needs of our nation.

UNITED WAY
Y-12's 2013 United Way campaign continued the site's commitment to supporting United Way organizations across our community. Creative new events, including a cornhole tournament and car show, and old favorites such as silent auctions and bake sales helped raise funds for local United Way agencies. In addition, employees contributed through payroll deductions, cash and vacation-time donations. Since 2000, Y-12 has contributed more than $9 million to United Way.

SECRET CITY FESTIVAL
The Y-12 prime contractor presented a check for $25,000 to support the Secret City Festival in Oak Ridge. Y-12 has been a premier sponsor of the Secret City Festival for the past eight years. The Oak Ridge Convention and Visitors Bureau estimates 20,000 people attend the festival each year.

CHILDREN'S MUSEUM
Y-12 donated $10,000 to the Children's Museum in Oak Ridge. The funds will support the museum's programs, including its planned Healthy Living exhibit. Y-12 employees and their families have donated their time and skills to various museum projects for the past 10 years, including painting, landscaping and maintaining the museum's heating and air conditioning system.

ENGINEERS WEEK
More than 4,300 students from 45 area schools learned about technical careers and participated in fun, hands-on activities during Y-12's Engineers Week classroom visits and the Introduce a Girl to Engineering event. A total of 116 Y-12 volunteers from engineering and science disciplines participated.

ASM MATERIALS CAMP
Fifteen high school students and one college freshman attended the weeklong ASM Materials Camp, where they performed failure analyses on prosthetic implants supplied by an area surgeon. The camp is organized and sponsored by Y-12, Oak Ridge National Laboratory, Tech 20/20 and the University of Tennessee to introduce students to materials science.

HALLS MIDDLE SCHOOL VISIT
During a visit to the Y-12 National Security Complex in May, nearly 50 Halls Middle School students rubbed elbows with Y-12 engineering, science and history experts. Halls science teacher Andrea Souza worked with Y-12 to set up the tour and said, "I want my kids to become scientists. I want them to walk away from Y-12 and say, 'I want to work there someday.'"

YOUNG INNOVATORS' SOCIETY AWESOME EYEBALLS
A Science, Technology, Engineering and Math (STEM) team of rising sixth graders in northern Ohio is onto something big—reducing mercury levels in fish.

Four "scientists in the making" and their mentors traveled to Oak Ridge for two days of touring, working and planning. The Awesome Eyeballs are part of the Young Innovators' Society, a non-profit organization of volunteers who work with K–12 students to pursue STEM learning and leadership.

For their annual challenge, the Awesome Eyeballs brainstormed scientific issues and landed on reducing mercury levels in fish. However, it was when Dennis Miller of Y-12's Program Management organization met Nadine Otterman, executive director of the Young Innovators' Society and mentor for this club, that the pieces of the puzzle fell into place. "With such a novel approach and the direct applicability to Y-12, I knew these kids needed to come to Y-12 to realize the full potential of their research. We often say our future is in the hands of our youth; this was an opportunity to let them show us what they can do," Miller said.

The team developed a proprietary treatment technology and is now in discussion with Y-12 and Oak Ridge National Laboratory researchers to develop an experimental plan to create a field application likely to have direct benefit to Y-12's efforts to improve the environmental quality of East Fork Poplar Creek.

With approximately 5,000 employees and nearly 2,000 subcontractors, the sheer magnitude of Y-12 has a significant economic impact on the surrounding community. By contributing billions of dollars to East Tennessee through operating revenues, wages, taxes and pensions, Y-12 helps generate thousands of area jobs. In fiscal 2013, Y-12 paid $407 million in wages, spent $390 million on goods and services and paid the state of Tennessee more than $12.2 million in taxes, a portion of which the state returns directly to Oak Ridge and to Anderson, Knox and Roane counties.

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